

passage from Exodus: "But there came from amongst the women and maidens those who were skilled in weaving and embroidery, and they brought carpets made by their hands," &c.

**Libraries for Hospitals on the Rhine.**—As it has occurred to the managers of several hospitals, that patients of active habits will recover sooner and in greater proportion than the apathetic and lazy, small libraries have been established at the Sta. Cecilia Hospital, Cologne, and elsewhere. It has been generally found, in all libraries destined for people of the humbler walks of life, that if a label be placed on the cover, earnestly but kindly requesting the clean and attentive preservation of such books, they will not become untimely soiled, which is one of the chief impediments to the general introduction of libraries for the people.

**The Mass of Gold existing in Europe.**—Professor Nöggerath, of Bonn, has recently calculated the bulk of gold at present in circulation. He states, that the whole amount of gold and silver coin throughout Europe is 320,000,000*l.* sterling. Assuming, as the professor does, that the half of this sum, 160,000,000*l.* is gold coin, this, if cast into a solid mass, would form a cube, whose sides would form lines of 26 feet, 9 inches, 84 lines, Rhenish measure. The produce of the Californian mines in 1850, amounting to 7,500,000*l.*, would make a cube of 9' 5" 1". The produce of the Russian mines of the same year being 4,000,000*l.*, a cube of 7' 10" 1". The Californian and Russian gold of 1850, in fine, cast in one mass, would form a cube of 11' 1" 10".

**Canalisation of Rivers, and other Hydraulic Works in France.**—After the example lately set to the French by England, they have even adopted the term *drainage*, and begun the utilisation of their waste lands. On the other hand, the French Government have perceived, that unless they attend to the extension of their ways of communication, the agricultural produce would be of little avail. Thus, since the year 1835, the large sum of 192,000,000*l.* have been voted for the improvement of river navigation. Still, the French press truly states, that, according to the geographical position of France, the works for regulating the rivers and other water-courses would be amongst the most extensive and important in Europe. The following are a few of the principal works to which the above large sum has been applied:—The Sheldes (l'Escaut), from Cambrai to the frontier, 1,800,000*l.*; Moselle, from Frouard to the frontier, 1,000,000*l.*; the Ill, from the end of the canal from the Rhône to the Rhine, to the entrance in the Rhine, 1,400,000*l.*; the Seine, from Marseilles to Rouen, 7,000,000*l.*; between Nogent and Paris, 5,000,000*l.*; the Seine on its passing Paris, 5,000,000*l.*; between Pont du Grenelle and Rouen, 10,300,000*l.*; between Rouen and La Méulière, 1,500,000*l.*; between Villequier and Quillebeuf, 3,000,000*l.*

#### REMOVAL OF FOUL AIR FROM WELLS.

AMONGST the suggestions which have appeared in your paper, in regard to means for the removal of foul air in wells, that urging the use of a *revolving fan* is the best. This, as you know, is nothing more or less than the common "Blow George," which has been known to miners for perhaps fifty years, and was used at the mouths of all the shafts (about twenty) of the four tunnels recently constructed within a mile and a half of this place (St. Leonard's-on-Sea). While the shafts were being sunk they did their duty tolerably well; but as soon as the "headings" were driven a few yards, then their incapacity became very apparent. One life was lost; and very many of the men were seriously ill in consequence of the prevalence of noxious gases and the scanty supply of pure air. To remedy this, the contractor, Mr. Newton, invented a machine at once simple, inexpensive, and which forced down shafts 150 feet deep, and along the heading, 150 feet more, such a volume of atmospheric air, that at a distance of five yards from the end of the pipe it would blow a candle out. This "air pump" is fully described and illustrated with

a diagram in the *Mechanics' Magazine*, dated July 14, 1849. I will describe it as clearly and briefly as I can.

It consists of two boxes about 3 feet square, one sitting into the other. The outer one is half-filled with water, which renders it air-tight, and assists in floating up the inner one. On the top of the inner one is fixed a "valve box," with the valve opening inwards, so as to admit the air, but not to allow any to escape. Through the bottom of the outer box, and rising above the water in it, is a pipe, also with a clack in it, which communicates with a sise or gutta percha tube that runs down the shaft and along the heading to the point where the air is to be conveyed.

The operation of the machine is this:—when the inner box is raised it becomes charged with air: when it is pressed down, the air is forced through the only point of egress, viz., down the shaft (very like the common bellows): by a simple mechanical contrivance the windlass or jack roll of a well may be made to work it. In the case of the tunnel it was worked by a crank attached to the shaft of the "gin" pulley wheels, and was made double, so that a continuous flow of air was effected: for ordinary wells, however, this is not required, a single one answering as well. I may add that the cost of constructing it is only 3*l.*, and with a proper counterbalancing weight, but very little is added to the labour of the men at the windlass.

W. BURR.

#### TESTIMONIAL PORTRAIT TO MR. THOMAS CUBITT.

THE portrait of Mr. Thomas Cubitt, painted by Mr. Pickersgill, R.A. for the Builders' Society, and to be presented by them to Mr. Cubitt, as a testimony of their respect and esteem, has been engraved by Mr. G. R. Ward in mezzotint, and each subscriber will receive an impression from the plate. The picture, already mentioned by us, is a full length, and represents Mr. Cubitt standing in an accustomed attitude, the right hand in the vest. Mr. Ward has executed his task very satisfactorily; but the likeness, although still very good, is not quite so striking as it seemed to us in the picture. The society are indebted to Mr. W. Herbert for the care with which, as treasurer, he has carried out their views. Mr. Cubitt has done so much for the improvement of London, he has ever shown so much solicitude for the welfare of the large body of operatives employed by him, and he is so estimable in every relation of life, that there are necessarily many who would gladly possess themselves of his portrait, if it were obtainable; and we therefore venture to suggest to the Builders' Society, that if they were to allow a certain number of impressions to be sold, they would gratify many persons, and raise a fund which might be applied to some useful purpose.

**WOOD PAVEMENT.**—The necessity of relaying and renewing this pavement might, to a very considerable extent, be obviated if proper precautions were taken in ballasting the foundations. The present mode is to bed the wood on a thick layer of concrete, say six inches thick, laid on the unformed and vegetable earth, than which nothing can be more absurd: with rolling weights it becomes a ruin at once. If the roadway were ballasted with two feet, at the least, of good concrete, and the wood properly laid in frames, I will venture to say that it would wear well, and the public generally would soon appreciate the advantage of absence of noise, jar, and vibration, and ease of traction, which are, or might be, the distinguishing characteristics of wood paving. If the roadway were formed with a proper degree of curvature, and kept properly clean, it would always be dry.—R. L. S.

**A MONSTER SAW.**—Sheffield is active in contributing articles of its industry for the Crystal Palace. Messrs. Spears and Jackson are having a circular saw made with segment joinings of 5 feet in diameter, to be the centre of well-finished smaller satellites of starry-edged teeth. This will, it is supposed, be the largest circular saw ever manufactured.

#### THE ORDNANCE AND CIVIL SURVEYORS.

SURVEY OF SWANSEA.

CAN any of your readers inform me who has been the successful competitor for the Survey and Mapping of Swansea, for drainage purposes, advertised in your columns a few weeks ago? As one of the parties who have tendered for it, I certainly expected an intimation ere this, as to the result, through some channel or other, but as yet am totally in the dark. Can it be possible another insult as well as injury has been offered to the civil surveyors of the country, by handing over this borough to the tender mercies of the Ordnance, leaving the former respectable class, who have paid heavy premiums for (as they imagined) a respectable and lucrative profession, either to remain in comparative idleness, or submit to a salary of 3*l.* or 4*l.* a day from the Ordnance, under the superintendence of some Corporal Casey, or some Colour-sergeant Smith. Really, sir, this is too bad, and should not be any longer submitted to. We have passed with patience some disheartening years, for want of employment, and no sooner does the prospect of improvement present itself, than some meddling colonel or some grasping captain, in connection with his corps, steps in, and instantly vanishes all future hope of a contract for the educated expectant civilian. If the Ordnance be so anxious for employment, in God's name let them proceed with the National Survey of England and Scotland, so long in embryo, and leave such towns as Swansea, Coventry, &c., to the men who not only have the best right to it, but are infinitely superior in point of accuracy, style, and every other necessary character and bearing of the work. Witness the numerous glaring, destructive, and mischievous errors in the Ordnance levels discovered by civilians in the Sewers' office, Greek-street, a few days ago, and hushed up by the Commissioners, on account of the Ordnance influence with that assembly. I wait to be enlightened as regards the fate of the Swansea tender; and should it be, as I anticipate, in the hands of the Ordnance, trust that you will, in connection with the entire profession, give your advice and assistance against such an unjust monopoly.

A CIVIL SURVEYOR.

\* \* We have received three other letters on this subject. One writer states he has received printed notice his tender was not accepted.

#### A VISION IN TRAFALGAR SQUARE.

I WOULD offer to your notice a suggestion for the improvement of Trafalgar-square. I would begin with the National Gallery, and if I could not turn all the horse traffic from the front and sides round by Charing-cross, I would simply bring out the front portico of the gallery with a splendid flight of granite steps down to the road, and would curve the road there as required around the steps: I would finish the sides and tear away all the spiked rails. I would then take in hand the sides and front wall of the enclosure, and throw all down to the level of the road above, and begin from that with easy steps again to the base; the whole steps to take the horse-shoe form. For the base I would clear away all the water apparatus and lay down a simple well-paved surface, sloping sufficiently towards the column; and the whole would give a splendid amphitheatre. Then should I be glad to hear an orator-worthy, from the pedestal of the column, deliver an oration on the genius of the hero whose effigy stands on its summit.—PENRYN ASTON.

#### PORCELAIN COTTAGES FOR THE POOR.

Could not some ingenious brick or brown-ware makers adapt the plan of using long slips sliding in grooves to cheap cottage building for the rural poor, by employing lengths of coarse ware, fitting in grooves of timber or iron framing? I do not mean that the walls should be no thicker than a single plate of the ware; but to have an inside and an outside set of plates, with the interstice filled in with clay or any cheap stuff that would hold together.—W. S. M.